2013

The Role of Science in the Supreme Court's Limitations on Juvenile Punishment

Kevin W. Saunders
Michigan State University College of Law, saunde44@law.msu.edu

THE ROLE OF SCIENCE IN THE SUPREME COURT'S LIMITATIONS ON JUVENILE PUNISHMENT

Kevin W. Saunders[*]

I. INTRODUCTION

Since 1988, the United States Supreme Court has considered the propriety of imposing very harsh sentences, death or life without the possibility of parole, for offenses minors committed.[1] In a pair of cases in 1988 and 1989, the Court threw out a death sentence for a person who had committed murder as a fifteen-year-old, but later refused to find the imposition of the death penalty on a person who committed murder as a seventeen-year-old unconstitutional.[2] In a later series of cases, the Court reversed course and held unconstitutional the imposition of the death penalty or of life without the possibility of parole, at least as a mandatory sentence, when the crime had been committed before the defendant turned eighteen.[3]

There were advances in the scientific understanding of the nature of juveniles that might serve to explain the Court's change in position. Indeed, this new scientific knowledge was presented to the Court in briefs by amici in recent cases.[4] This Article will examine the role that the scientific developments may or may not have played in the Court's change in position.

---

* Charles Clarke Chair in Constitutional Law, Michigan State University. A.B., Franklin & Marshall College; M.S., M.A., Ph.D., University of Miami; J.D., University of Michigan. Professor Saunders was on brief for the petitioner in Thompson v. Oklahoma, 487 U.S. 815 (1988), discussed *infra* notes 37–63 and accompanying text.

1. *See* Stanford v. Kentucky, 492 U.S. 361, 380 (1989), *abrogated by* Roper v. Simmons, 543 U.S. 551 (2005); Thompson v. Oklahoma, 487 U.S. 815, 838 (1988).

2. *See Stanford*, 492 U.S. at 380, *abrogated by* Roper v. Simmons, 543 U.S. 551 (2005); *Thompson*, 487 U.S. at 838.

3. *See* Miller v. Alabama, 132 S. Ct. 2455, 2475 (2012); Graham v. Florida, 130 S. Ct. 2011, 2034 (2010); *Roper*, 543 U.S. at 579.

4. *See infra* notes 131–32 and accompanying text.

First, the state of science leading into the 1988 and 1989 cases will be presented.[5] Second, the Court's decisions in those cases will be examined.[6] Next, developments in science between the two groups of cases will be discussed.[7] That will be followed by a discussion of the treatment of the science in the opinions by the members of the Court in the later series of cases.[8] Lastly, conclusions regarding the role of science will be offered.[9]

II. THE STATE OF SCIENCE IN 1988

At the time of the Supreme Court's first considerations of the juvenile death penalty, there was science speaking to the development of children, although not of the neuroscientific variety that might be thought to have influenced the Court in the later cases. The science did not study the physical structure of the relevant regions of the brain, but presented conclusions based on examining the behavior of children and asking them questions involving moral decision-making. The interest had not been so much in the answers that came from the children, but in how they approached the problems. Even in this pre-neuroscience era, in the sense of applying neuroscience to the development of youth, there was evidence that moral development was a long-term process, a recognition that moral reasoning in youths and teenagers was not fully developed.

Some of the early work in this area was that of Jean Piaget, perhaps better known for his study of the development of mathematical thinking,[10] but an important contributor to the field of moral development as well.[11] Piaget's study involved presenting a variety of stories to children of different ages.[12] He then asked them questions about the stories to examine their moral reasoning. All the stories involved a person who caused harm to another, with variation in the seriousness of the harm and the intention of the actor.[13]

Piaget found that children younger than ten focus on the consequences of the act; the intention of the actor is not seen as a measure of wrong or fault.[14] It is only how much harm occurs that determines how wrong the act is.[15] This

---

5. *See infra* Part II.
6. *See infra* Part III.
7. *See infra* Part IV.
8. *See infra* Part V.
9. *See infra* Part VI.
10. *See generally* RICHARD W. COPELAND, HOW CHILDREN LEARN MATHEMATICS: TEACHING IMPLICATIONS OF PIAGET'S RESEARCH (4th ed. 1984) (demonstrating the influence of Piaget on mathematics education).
11. *See* DANUTA BUKATKO & MARVIN W. DAEHLER, CHILD DEVELOPMENT: A TOPICAL APPROACH 541–43 (1992) (discussing Piaget's work); JEAN PIAGET, THE MORAL JUDGMENT OF THE CHILD (Marjorie Gabain trans., 1932).
12. *See* PIAGET, *supra* note 11, at 104.
13. *See id.*
14. *See* BUKATKO & DAEHLER, *supra* note 11, at 541–42.
15. *See id.*

would seem parallel to any argument in the debate over juvenile punishment that rests on the serious results the actions of children may have. Its sole focus on consequences seems representative of this undeveloped form of moral reasoning.

Piaget determined that it is only older children who consider motives and intentions in their moral analyses, particularly in assigning fault.[16] This can be seen as a sort of cognitive development because it requires an ability to understand motives and intentions.[17] What is clear from Piaget's work is that moral development is a process that takes place over a number of years and extends beyond the early cognitive development of infancy.[18]

The path Piaget blazed was later picked up by Lawrence Kohlberg, who showed that the development Piaget identified carried on into the teen years and young adulthood.[19] As had Piaget, Kohlberg presented his subjects with scenarios that raised moral issues.[20] Perhaps his best-known scenario involved a man whose wife was dying of cancer: The local pharmacist had developed a drug treatment that would cure her, but was charging a price that was far in excess of what the man could afford and what it cost to produce the drug. Failing to convince the pharmacist to reduce the price or defer payment, the man stole the drug.[21]

When Kohlberg asked children of various ages whether or not the husband should have stolen the drug, he found that the responses varied with age.[22] It was not, however, the yes-or-no response that interested Kohlberg, but instead, it was the subjects' moral reasonings backing up their positions. While not all children of the same age offered the same sorts of reasons, the children did progress through the same stages of moral development and varieties of reason, even if at different rates.[23]

---

16. *See id.*

17. *See infra* Part IV. This understanding of the motives and intentions of others differs from the development of judgment and inhibition in the individual, a development that occurs later in the child's life. Understanding that motive and intention matter is not the same as deciding whether or not to act in a particular way, controlling one's desires or predicting the consequences of one's actions.

18. *See* PIAGET, *supra* note 11, at 104.

19. *See, e.g.*, Lawrence Kohlberg, *Moral Stages and Moralization: The Cognitive-Developmental Approach*, *in* MORAL DEVELOPMENT AND BEHAVIOR: THEORY, RESEARCH, AND SOCIAL ISSUES 31 (Thomas Lickona ed., 1976) [hereinafter Kohlberg, *Moral Stages and Moralization*]; Lawrence Kohlberg, *Stage and Sequence: The Cognitive-Developmental Approach to Socialization*, *in* HANDBOOK OF SOCIALIZATION THEORY AND RESEARCH 347 (David A. Goslin ed., 1969) [hereinafter Kohlberg, *Stage and Sequence*]; *see generally* LAWRENCE KOHLBERG, THE PSYCHOLOGY OF MORAL DEVELOPMENT: THE NATURE AND VALIDITY OF MORAL STAGES (1984) [hereinafter THE PSYCHOLOGY OF MORAL DEVELOPMENT].

20. *See generally* THE PSYCHOLOGY OF MORAL DEVELOPMENT, *supra* note 19 (presenting essays on moral development, authored or co-authored by Kohlberg).

21. *See id.* at 640.

22. *See id.*

23. Carol Gilligan criticized Kohlberg's stages and believed Kohlberg to have been male-centric in his analysis. *See* CAROL GILLIGAN, IN A DIFFERENT VOICE: PSYCHOLOGICAL THEORY AND WOMEN'S DEVELOPMENT 18 (1982). Gilligan identified stages of moral development in females. *Id.* at 64. While the stages may have been different, they were still present. *Id.* Because most of the juvenile punishment issues arise in cases involving male defendants, the focus in the remainder of this section will be on Kohlberg's

Kohlberg concluded that children progress from what he called the "preconventional stage" through the "conventional stage," and then to the postconventional stage of moral reasoning, further complicated by the conclusion that each stage actually has two substages.[24] In the preconventional stage, the child focuses solely on punishment and reward.[25] In the first substage of the preconventional stage, the child is concerned with avoiding punishment, and as Piaget had found, it is the consequence of an act, rather than motive, that matters.[26] In the second substage, the focus is on following rules when it is in one's interest,[27] an interest that could include being rewarded, along with the recognition that there is more to moral judgment than simply considering the magnitude of an act's consequences.[28]

At the conventional stage, children recognize the existence of societal rules and a social order.[29] Intentions, motives, and the perspectives of others come to play a role in moral reasoning. In the first substage, the child focuses on avoiding disapproval, not simply avoiding punishment or living up to what is expected; motives are seen as important.[30] At the second substage, the focus changes to adhering to the rules of, and duties imposed by, the social system.[31] It is this last, fourth substage that is seen as going beyond the developmental stages Piaget recognized.[32]

Kohlberg did recognize a third "[p]ost conventional, or principled" stage, a stage some reach as children, but are more likely to reach as young adults.[33] At that stage, the individual understands the nature of laws and rules and becomes capable of rather advanced moral reasoning.[34] Because this stage occurs at an age beyond what would be considered juvenile, it lacks relevance for the current analysis.[35]

---

stages. *Id.*

24. *See* BUKATKO & DAEHLER, *supra* note 11, at 544–46.

25. *See id.*

26. *See* Kohlberg, *Stage and Sequence*, *supra* note 19, at 379–80.

27. *See* Kohlberg, *Moral Stages and Moralization*, *supra* note 19, at 174.

28. *See* Kohlberg, *Stage and Sequence*, *supra* note 19, at 379–80.

29. Kohlberg, *Moral Stages and Moralization*, *supra* note 19, at 174–75.

30. *Id.*

31. *See id.* at 175.

32. *See* THE PSYCHOLOGY OF MORAL DEVELOPMENT, *supra* note 19, at xxviii.

33. *See* Kohlberg, *Moral Stages and Moralization*, *supra* note 19, at 175.

34. *See id.*

35. *See* Lawrence Kohlberg, *Moral Development Theory*, *in* THE PSYCHOLOGY OF MORAL DEVELOPMENT, *supra* note 19, at 5. Kohlberg said that the fifth substage, the first of the post-conventionalist substages, would appear in the post-college years, rather than when the individual would be considered a juvenile for criminal purposes, and that the sixth was more of a theoretical ideal. *See id.* In later work applying a refinement of the standards, he found that none of the individuals studied, with one possible exception, had reached that sixth level. *See* Lawrence Kohlberg, Charles Levine & Alexandra Hewer, *The Current Formulation of the Theory*, *in* THE PSYCHOLOGY OF MORAL DEVELOPMENT, *supra* note 19, at 270–74.

Thus, at the time of the Supreme Court's first two juvenile death penalty cases, there was science that could have informed the Court's decisions.[36] The next section will consider the impact of the science on those decisions.

III. THE COURT'S EARLY DECISIONS

The Court first considered the imposition of the death penalty on a person who committed a crime as a juvenile in *Thompson v. Oklahoma*.[37] That case involved a fifteen-year-old who had participated in the murder of his former brother-in-law, seemingly in an effort to protect the defendant's sister from continuing abuse.[38] A plurality opinion by Justice Stevens, joined by Justices Brennan, Marshall, and Blackmun, concluded that the imposition of the death penalty on one so young was unconstitutional.[39] The result in favor of the defendant-appellant required one more vote. Justice O'Connor provided that vote, but she was unwilling to conclude that the Constitution provided the protection for juveniles the plurality asserted.[40] There was also a three-justice dissent written by Justice Scalia and joined by Chief Justice Rehnquist and Justice White.[41]

So, what role did science play in the opinions? The plurality opinion seems to have drawn some guidance from the scientific understanding of youth.[42] The plurality said the decision on the permissibility of the death penalty was based on whether or not children could be as culpable as adults, and on whether "the social purposes . . . served by the death penalty" justify its application to those under sixteen years old at the time of their crimes.[43]

With regard to culpability, the plurality noted "broad agreement on the proposition that adolescents as a class are less mature and responsible than adults."[44] Fleshing out this general observation, the plurality went on to say:

> [Y]outh is more than a chronological fact. It is a time and condition of life when a person may be most susceptible to influence and to psychological damage. Our history is replete with laws and judicial recognition that minors, especially in their earlier years, generally are less mature and responsible than adults.[45]

---

36. *See supra* notes 29–35 and accompanying text.
37. *See* Thompson v. Oklahoma, 487 U.S. 815, 818–19 (1988).
38. *See id.*
39. *See id.* at 818.
40. *See id.* at 848–49 (O'Connor, J., concurring).
41. *See id.* at 859 (Scalia, J., dissenting).
42. *See id.* at 833–35 (plurality opinion).
43. *See id.* at 833.
44. *Id.* at 834.
45. *Id.* (quoting Eddings v. Oklahoma, 455 U.S. 104, 115–16 (1982)) (internal quotation marks omitted).

The plurality noted that harm to the victim may be just as significant when a crime is committed by a juvenile, but stated that juveniles "deserve less punishment because adolescents may have less capacity to control their conduct and to think in long-range terms than adults."[46] Further, the plurality noted that blame for the failure to conform conduct to the expected is also a failure of the family, the schools, and the social system.[47] The minor's lack of experience, education, and greater susceptibility to peer pressure make the child less culpable.[48]

Turning to the purposes of the death penalty, the plurality found two principal purposes: retribution and deterrence.[49] Retribution was not consistent with the "lesser culpability of the juvenile offender, the teenager's capacity for growth, and society's fiduciary obligations to its children."[50] Deterrence was equally inapplicable.[51]

> The likelihood that the teenage offender has made the kind of cost-benefit analysis that attaches any weight to the possibility of execution is so remote as to be virtually nonexistent. And, even if one posits such a cold-blooded calculation by a 15-year-old, it is fanciful to believe that he would be deterred by the knowledge that a small number of persons his age have been executed . . . .[52]

Because the social purposes of capital punishment were not met, such a penalty was seen as a "purposeless and needless imposition of pain and suffering."[53]

To throw out the death sentence, one more vote was needed.[54] Justice O'Connor provided that vote, but her concurring opinion did not rest on any insights involving juveniles.[55] She noted that the state had two separate statutes that, put together, allowed the execution of minors.[56] One statute provided for capital punishment for murder, but did not set a minimum age.[57] The other provided that fifteen-year-olds might, under some circumstances, be treated as adults.[58] As a result, she thought there was "a considerable risk that the Oklahoma Legislature either did not realize that its actions would have the effect of rendering 15-year-old defendants death eligible or did not give the question the serious consideration that would have been reflected in the explicit

---

46. *Id.* (quoting *Eddings*, 455 U.S. at 115) (internal quotation marks omitted).
47. *See id.*
48. *See id.* at 835.
49. *See id.* at 836.
50. *Id.* at 836–37.
51. *Id.* at 837.
52. *Id.* at 837–38.
53. *Id.* at 838 (quoting Coker v. Georgia, 433 U.S. 584, 592 (1977)) (internal quotation marks omitted).
54. *See id.* at 848–60 (O'Connor, J., concurring).
55. *See id.*
56. *See id.* at 850–52.
57. *See id.*
58. *See id.*

choice of some minimum age for death eligibility."[59] She was not ready to conclude that there is anything inherently wrong with executing a person who was fifteen at the time of committing a murder, but concluded only that a state that wishes to do so must explicitly make that choice.[60]

There was also a three-justice dissent written by Justice Scalia, joined by the Chief Justice and Justice White. They made clear their view that age is not a sufficient basis for vacating a death sentence.[61] The dissenters concluded that any question of whether the particular defendant should be so treated was resolved by the state criminal justice system; the jury "considered whether, despite his young age, his maturity and moral responsibility were sufficiently developed to justify the sentence of death."[62] The dissent was not willing to rely on any conclusions regarding the development of juveniles.[63]

The next case, *Stanford v. Kentucky*, was decided in the next term.[64] While the case might be seen as a change in direction for the Court because it had the opposite result for the defendant than in *Thompson*, the Justices actually maintained their positions from the case a year earlier. The defendants in *Stanford* (actually two consolidated cases from Kentucky and Missouri) were seventeen and sixteen-year-olds, named Stanford and Wilkins, who were found guilty of more random murders.[65] The judgment of the Court was announced by Justice Scalia, whose opinion was joined in total by the other dissenters from *Thompson*, and by Justice Kennedy, who had not participated in *Thompson*.[66] Justice Scalia noted that there had been a hearing on whether or not to transfer Stanford to adult court and that Wilkins had been certified by the juvenile court for trial as an adult.[67] Given this individualized assessment, and failure to find any consensus against the juvenile death penalty, a majority of the Court, with Justice O'Connor joining on this point in Justice Scalia's opinion, upheld the death penalty sentences.[68]

Turning to the kind of analysis that had been offered by the *Thompson* majority, the opinion by Justice Scalia, having lost Justice O'Connor's vote on this issue and so becoming a plurality opinion, rejected the claim that the death penalty for juveniles serves no legitimate purpose.[69] The plurality noted "an array of socioscientific evidence concerning the psychological and emotional

59. *Id.* at 857.
60. *See id.* at 854–55.
61. *Id.* at 859.
62. *Id.* at 863 (O'Connor, J., concurring), 878 (Scalia, J., dissenting).
63. *Id.* at 878 (Scalia, J., dissenting).
64. Stanford v. Kentucky, 492 U.S. 361 (1989), *abrogated by* Roper v. Simmons, 543 U.S. 551 (2005).
65. *Id.* While the defendant in *Thompson* had killed his ex-brother-in-law in a seeming attempt to protect his sister, Stanford committed murder following a rape and robbery, and Wilkins, the defendant in the Missouri case, also killed his victim in the process of a robbery. *See id.* at 365–66; *Thompson*, 487 U.S. at 819 (plurality opinion).
66. *Stanford*, 492 U.S. at 361.
67. *See id.* at 365–67.
68. *See id.* at 377–78.
69. *Id.* at 377.

development of 16- and 17-year-olds."[70] The plurality, however, effectively found the evidence irrelevant:

> If such evidence could conclusively establish the entire lack of deterrent effect and moral responsibility, resort to the Cruel and Unusual Punishments Clause would be unnecessary; the Equal Protection Clause of the Fourteenth Amendment would invalidate these laws for lack of rational basis. But as the adjective "socioscientific" suggests (and insofar as evaluation of moral responsibility is concerned perhaps the adjective "ethicoscientific" would be more apt), it is not demonstrable that no 16-year-old is "adequately responsible" or significantly deterred. It is rational, even if mistaken, to think the contrary. The battle must be fought, then, on the field of the Eighth Amendment; and in that struggle socioscientific, ethicoscientific, or even purely scientific evidence is not an available weapon. . . . We have no power under the Eighth Amendment to substitute our belief in the scientific evidence for the society's apparent skepticism.[71]

While speaking of societal skepticism, it seems clear that the plurality, at least with regard to the psychological sort of evidence then existing, was itself skeptical.

Justice O'Connor, who provided the fifth vote upholding the death penalty sentences, noted the difference between these cases and *Thompson*, in which she had provided the fifth vote overturning the death penalty.[72] In *Thompson*, she had noted that there was no state statute setting a minimum age for execution.[73] In *Stanford*, she said that "such specificity is not necessary to avoid constitutional problems if it is clear that no national consensus forbids the imposition of capital punishment for crimes committed at such an age."[74] With regard to sixteen or seventeen-year-olds, she found no such national consensus.[75]

The four Justices who had made up the plurality in *Thompson* found themselves dissenting in *Stanford*.[76] Those Justices called for a more searching inquiry that must:

> also encompass what Justice Scalia calls, with evident but misplaced disdain, "ethicoscientific" evidence. Only then can we be in a position to judge, as our cases require, whether punishment is unconstitutionally excessive, either

70. *Id.* at 377–78.
71. *Id.* at 378 (citations omitted).
72. *See id.* at 380–81 (O'Connor, J., concurring).
73. *Id.*
74. *Id.*
75. *Id.* at 381.
76. *Id.* at 382.

> because it is disproportionate given the culpability of the offender, or because it serves no legitimate penal goal.[77]

The dissent seems correct in picking up on the "disdain" in the plurality's view of science.[78] In contrast, the dissent would have drawn guidance from those with expertise.[79]

> Where organizations with expertise in a relevant area have given careful consideration to the question of a punishment's appropriateness, there is no reason why that judgment should not be entitled to attention as an indicator of contemporary standards. There is no dearth of opinion from such groups that the state-sanctioned killing of minors is unjustified.[80]

The dissent cited to amicus briefs filed primarily by public interest and religious organizations, as well as briefs filed by social workers and adolescent psychiatrists.[81]

Looking at the first two cases, then, despite the fact that the results were different, we find Justices sticking to their positions. Four Justices find scientific reasons for rejecting the juvenile death penalty.[82] Four Justices reject the then-existing science in upholding the death penalty.[83] Justice O'Connor, while refusing to join the *Stanford* plurality's rejection of science, finds a lack of consensus with regard to the propriety of executing those under sixteen, coupled with the consensus that the death penalty may be appropriate for those sixteen and older.[84] In fairness to those who rejected science, the science, consisting of observational theories of moral development, might have been seen as lacking the strength that was soon to appear.

IV. LATER DEVELOPMENTS IN SCIENCE

Neuroscience that spoke to juvenile capacity and culpability existed at the time of the earlier Supreme Court cases, but it was nowhere near as developed as it would come to be. Prior to these relatively recent developments, many believed that the growth and development of the brain was completed in early childhood.[85] If that was the case, there was not a physical distinction, other

77. *Id.* at 383 (Brennan, J., dissenting).

78. *See id.*

79. *Id.* at 388.

80. *Id.*

81. *See id.* at 388 n.4.

82. *Compare id.* at 383 (upholding the juvenile death penalty), *with* Thompson v. Oklahoma, 487 U.S. 815, 818 (1988) (rejecting the juvenile death penalty based on expert data).

83. *Compare Stanford*, 492 U.S. at 364 (majority opinion), *with Thompson*, 487 U.S. at 859 (1988) (rejecting the use of ethicoscientific data in order to uphold the death penalty).

84. *Stanford*, 492 U.S. at 380–81 (O'Connor, J., concurring).

85. BARBARA STRAUCH, THE PRIMAL TEEN: WHAT THE NEW DISCOVERIES ABOUT THE TEENAGE BRAIN TELL US ABOUT OUR KIDS 7 (2004).

than body size, to point to in differentiating juveniles from adults.[86] This began to change in the late 1970s with a study of brain tissue recovered during autopsies of normal individuals, ranging from infants to those in their nineties.[87] The study examined the density of synapses[88] in the middle frontal gyrus portion of the frontal cortex.[89]

The study found a constancy in density of those between sixteen and seventy-two, with a slight decline in old age.[90] More interesting, particularly for the subject of juvenile justice, were the changes found in infancy and early childhood.[91] Newborns were found to have a synaptic density equal to that of adults, but the density increased during infancy to reach a density 50% higher than that of adults by the time the child was two.[92] Synaptic density then decreased between ages two to sixteen to reach the adult level.[93] The study involved density, not simply the size of the brain.[94] The brain reaches its full size by about age seven, but the changes in density continue; the synaptic density of the seven-year-old brain is still 36% higher than that of the adult brain.[95]

A 1987 study, after the early Supreme Court cases, used positron emission tomography (PET) scans to measure the brain's use of glucose, a sign of brain activity.[96] Newborns used less glucose than adults, but by age one, their glucose levels reached adult levels and then continued to climb to twice adult levels by the time a child reached the age of three or four.[97] Their levels then remained steady until age nine, before decreasing to the adult rate between fifteen and twenty.[98] While this difference might be interesting in itself, perhaps more interesting was the finding that there were regional differences in the brain's glucose use at different stages of development, with the evolutionarily older portions maturing more quickly.[99] Glucose use in the brain

---

86. *See id.*

87. *See* Peter R. Huttenlocher, *Synaptic Density in Human Frontal Cortex—Developmental Changes and Effects of Aging*, 163 BRAIN RES. 195, 197 (1979).

88. *Id.* at 196. Synapses are the points at which nerve cells communicate, the gaps between the dendrite of one neuron and the axon of another. *See, e.g.*, CHRISTOPHER PETERSON, INTRODUCTION TO PSYCHOLOGY 56–58 (1991). Those dendrites and axons are branching extensions of neuron cell bodies that allow a sort of proximity among neurons whose cell bodies may be at some distance. *Id.* Because of the proximity, the chemical neurotransmitter released by the axon of one neuron causes a reaction in the dendrite of the other. *Id.*

89. *See* Huttenlocher, *supra* note 87, at 196. The frontal cortex is a portion of the cortex, the most highly evolved part of the brain, which is located behind the forehead. *See, e.g.*, PETERSON, *supra* note 88, at 63–64.

90. Huttenlocher, *supra* note 87, at 195.

91. *See id.*

92. *See id.*

93. *See id.*

94. *See id.*

95. *Id.* at 202.

96. *See* Harry T. Chugani et al., *Positron Emission Tomography Study of Human Brain Functional Development*, 22 ANNALS OF NEUROLOGY 487, 487 (1987).

97. *See id.* at 490.

98. *See id.*

99. *See id.*

stem and cerebellum was closer to the adult level at birth and in the first year, although within the cerebellum, the evolutionarily older portions matured earlier.[100] It was in the cerebral cortex that the greatest differences and changes were found.[101]

A paper published in the late 1990s shows the state of knowledge at that time.[102] It had become known that brain growth, the branching of dendrites to form synapses, and myelination, the insulation of nerve cells, took place first in the motor and sensory regions of the brain, and later in the more advanced prefrontal cortex.[103] The authors of the study also noted that these regional differences in physical development seemed to match differences in functional development.[104]

> More complex "executive" functions of [the] prefrontal cortex such as reasoning, motivation, and judgment appear to develop gradually during childhood and adolescence, perhaps continuing during the adult years. These uniquely human functions appear late during development, and their emergence may be aided by late persistence of exuberant synapses in [the] prefrontal cortex.[105]

This recognition of these physical differences, particularly in the development of brain regions involved in judgment, and the suggestion that development may continue into the adult years match the conclusions of the non-neurological study of moral development by Kohlberg.[106]

Science in this area would receive a major boost from the development of functional magnetic resonance imaging (fMRI). The use of MRIs overcame any issues with the shortage of material from autopsies, because MRIs could be conducted with a live subject. Furthermore, MRI studies allow for a longitudinal study of the same individual as the individual develops. The year 1999 saw the publication of several significant studies based on MRIs.

Dr. Jay Giedd of the National Institute of Mental Health and his colleagues studied 145 healthy individuals between 4.2 and 21.6 years of age, with most undergoing multiple MRI scans at approximately two-year intervals.[107] The study showed increases in cortical gray matter in the pre-adolescent years with a decrease in the post-adolescent years, and with peaks of development varying among the different regions of the cortex.[108] In another

---

100. *See id.* at 491–93.

101. *See id.* at 490.

102. *See* Peter R. Huttenlocher & Arun S. Dabholkar, *Regional Differences in Synaptogenesis in Human Cerebral Cortex*, 387 J. COMP. NEUROLOGY 167 (1997).

103. *See id.* at 167.

104. *See id.* at 178.

105. *Id.* (citation omitted).

106. *See id.*

107. *See* Jay N. Giedd et al., *Brain Development During Childhood and Adolescence: A Longitudinal MRI Study*, 2 NATURE NEUROSCIENCE 861, 861 (1999).

108. *See id.*

study published in the same journal, Professor Elizabeth Sowell and her colleagues found similar results in comparing MRI studies of the brains of adolescents and of young adults.[109] Comparing the twelve to sixteen-year-old group and the twenty-three to thirty-year-old age group showed significant differences and also noted a relation to function.[110] "In regions of [the] frontal cortex, we observed reduction in gray matter between adolescence and adulthood . . . . [T]he frontal lobes are essential for such functions as response inhibition, emotional regulation, planning and organization. Many of these aptitudes continue to develop between adolescence and young adulthood."[111]

Another study, published the next month in the same journal, demonstrates the function and importance of areas still under development in juveniles.[112] Professor Antonio Damasio of the University of Iowa and colleagues studied the behavior of two individuals who had suffered early physical injury to a portion of the prefrontal cortex, one as the result of an accident and the other as the result of a tumor.[113] The two exhibited "severely impaired social behavior despite normal basic cognitive abilities," were insensitive to the consequences of their behavior, and were not amenable to correction of their behavior through punishment.[114] While those who suffer similar injuries as adults also exhibit behavioral problems, those suffering such injuries in early childhood were also, unlike adults, deficient in the ability to reason morally.[115] The two patients, who suffered early injuries, had been left in the preconventional stage in Kohlberg's development of moral reasoning.[116] "The patients demonstrated limited consideration of the social and emotional implications of decisions, failed to identify the primary issues involved in social dilemmas and generated few response options for interpersonal conflicts."[117] In contrast, those injured as adults were able to engage in the level of moral reasoning developed prior to their injuries.[118]

A 2000 overview of the science of brain development of adolescents noted that it is not hormones that affect teen behavior; adolescent behavior is, instead, caused by physical changes in the brain, and these changes occur in other species as well.[119]

---

109. *See* Elizabeth R. Sowell et al., In Vivo *Evidence for Post-Adolescent Brain Maturation in Frontal and Striatal Regions*, 2 NATURE NEUROSCIENCE 859, 859 (1999).

110. *See id.* at 860.

111. *Id.* (footnote omitted).

112. *See* Steven W. Anderson et al., *Impairment of Social and Moral Behavior Related to Early Damage in Human Prefrontal Cortex*, 2 NATURE NEUROSCIENCE 1032, 1032–33 (1999).

113. *See id.* at 1032.

114. *Id.*

115. *See id.*

116. *See id.* at 1033.

117. *Id.*

118. *See id.* at 1034–35.

119. *See* Linda Patia Spear, *Neurobehavioral Changes in Adolescence*, 9 CURRENT DIRECTIONS IN PSYCHOL. SCI. 111, 111 (2000).

> This remodeling of the brain is seen in adolescents of a variety of species and entails not only brain growth, including the formation of additional connections between nerve cells, but also a prominent loss (or pruning) of such connections in particular neural regions. Among the brain areas prominently remodeled . . . is the prefrontal cortex, a brain region thought to be involved in various goal-directed behaviors . . . and in emotional processing . . . . Along with a decline in the relative size of the prefrontal cortex during adolescence, there is substantial remodeling of connections between neurons—with some connections lost and others added.[120]

The author concluded that, with these brain differences, it would be "astonishing indeed if adolescents did *not* differ from adults in various aspects of their motivated behavior."[121]

By 2003, *New York Times* science editor Barbara Strauch's book *The Primal Teen: What the New Discoveries About the Teenage Brain Tell Us About Our Kids* provided a statement regarding brain development that speaks to behavior.[122]

> Over a span of roughly ten to twelve years, the adolescent brain, through a series of sometimes subtle and sometimes breathtakingly dramatic shifts, is transformed from child to adult. The grey matter of an adolescent's frontal lobes grows denser and then abruptly scales back, molding a leaner thinking machine. The teenage brain fine-tunes its most human part, the prefrontal cortex, the place that helps us cast a wary eye, link cause to effect, decide "maybe not"—the part, in fact, that acts grown-up.[123]

The process includes the teen years, but matching the findings of Kohlberg, it lasts into the twenties.[124]

The impact this science should have on juveniles was also noticed in this now decade-old work.[125] Because one of the main tasks of the area under development is the inhibition of acts, and "[a]s the brain develops—in children and, science is now learning, in teenagers—it is this very inhibition machinery that is being fine-tuned. . . . [W]hat can we expect of adolescents if that inhibition machinery, the prefrontal cortex, is not yet fully tuned?"[126] It seems clear that teenagers are simply not as capable as adults at inhibiting behavior.[127] Furthermore, this less developed state of the brain makes it less likely that teenagers will recognize the consequences their acts may have.[128] When it

120. *See id.* at 112–13.
121. *Id.* at 113.
122. STRAUCH, *supra* note 85, at 203–04.
123. *Id.*
124. *See id.* at 204.
125. *Id.* at 32.
126. *See id.*
127. *See id.*
128. *See id.* at 91.

comes to inhibition and understanding consequences, both of which are vital to moral reasoning, the wiring of the teenage brain is incomplete and not up to the task.

V. THE COURT'S MORE RECENT DECISIONS

By the time the Court returned to the issue of the juvenile death penalty in *Roper v. Simmons*[129] and later cases on other harsh punishments, science, with regard to the juvenile brain and its impact on behavior, had clearly advanced beyond that which was available in the earlier cases.[130] The *Roper* Court was made aware of these scientific developments in a pair of amicus briefs, one filed by the American Psychological Association and the Missouri Psychological Association,[131] and the second by the American Medical Association, the American Psychiatric Association, the American Society for Adolescent Psychiatry, the American Academy of Child & Adolescent Psychiatry, the American Academy of Psychiatry & the Law, the National Association of Social Workers, the Missouri Chapter of the National Association of Social Workers, and the National Mental Health Association.[132] The briefs set out the science in greater detail than is presented here.[133] The science should have had an impact on the Court's understanding and rulings and, indeed, the Court came to a different conclusion in *Roper* than it had in *Stanford*.[134]

The defendant in *Roper* was seventeen when he committed a murder after a burglary.[135] Under Missouri law, a seventeen-year-old charged with such a crime is tried as an adult.[136] The court informed the jury, in considering the death penalty, that it could consider the defendant's age as a mitigating factor, but it recommended the death penalty.[137] When the case reached the Supreme Court, the majority, in an opinion written by Justice Kennedy and joined by Justices Stevens, Souter, Ginsburg, and Breyer, found a consensus among the states against the juvenile death penalty and concluded that the Eighth Amendment required the rejection of such a penalty for juveniles.[138]

The Court noted three differences between juveniles and adults that demonstrate that juveniles cannot be considered to be among the worst

129. *See* Roper v. Simmons, 543 U.S. 551, 551 (2005).

130. *See id.* at 569.

131. *See* Brief for American Psychological Ass'n & the Missouri Psychological Ass'n as Amici Curiae Supporting Respondent, Roper v. Simmons, 543 U.S. 551 (2005) (No. 03-633), 2004 WL 1636447.

132. *See* Brief for American Medical Ass'n et al. as Amici Curiae Supporting Respondent, Roper v. Simmons, 543 U.S. 551 (2005) (No. 03-633), 2004 WL 1633549.

133. *See supra* notes 131–32 and accompanying text.

134. *See Roper*, 543 U.S. at 575.

135. *See id.* at 556.

136. *Id.* at 557.

137. *Id.* at 558.

138. *See id.* at 564–68.

offenders—those subject to the death penalty.[139] First, a lack of maturity and the less-developed sense of responsibility lead to action decisions that are impetuous and ill-considered.[140] Juveniles are less in control of their own environments and more vulnerable to negative influences and peer pressure.[141] And, "the character of a juvenile is not as well formed as that of an adult. The personality traits of juveniles are more transitory, less fixed."[142] This last factor appeared to be particularly relevant.[143] The Court said:

> The reality that juveniles still struggle to define their identity means it is less supportable to conclude that even a heinous crime committed by a juvenile is evidence of irretrievably depraved character. From a moral standpoint it would be misguided to equate the failings of a minor with those of an adult, for greater possibility exists that a minor's character deficiencies will be reformed.[144]

Having recognized diminished culpability, the Court found the justifications offered for the death penalty did not apply as strongly to juveniles as adults.[145] Lesser culpability, because of the factors noted, means that retribution is not appropriate.[146] Furthermore, the same factors that make juveniles less culpable make them less likely to be deterred by the possibility of a death sentence.[147]

Justice O'Connor filed a dissenting opinion.[148] She found the evidence of a consensus against the juvenile death penalty lacking, reflecting the position she had taken in *Stanford*.[149] She did not completely discount the fact that juveniles are generally less culpable than adults, but said that did not mean that every seventeen-year-old was insufficiently culpable to merit the death penalty.[150] Rather than drawing a line fixed on the basis of age, she concluded that individualized assessment by juries considering age as a mitigating factor was adequate to single out those juveniles to be subjected to the death penalty.[151]

---

139. *See id.* at 569.
140. *See id.*
141. *Id.*
142. *Id.* at 570 (citing E. ERIKSON, IDENTITY: YOUTH AND CRISIS (1958)).
143. *Id.*
144. *Id.*
145. *Id.* at 571.
146. *Id.*
147. *Id.* The Court noted the rule preventing psychiatrists from diagnosing patients under eighteen as having antisocial personality disorder because of the difficulty in determining which rare juvenile offenders might be irreparably corrupt. *See id.* at 573.
148. *Id.* at 587 (O'Connor, J., dissenting).
149. *Id.* at 588.
150. *See id.* at 599–600.
151. *See id.* at 606.

Justice Scalia also wrote a dissent, in which he was joined by Chief Justice Rehnquist and Justice Thomas.[152] Justice Scalia, like Justice O'Connor, saw no evidence of a consensus against the juvenile death penalty.[153] In his view, "the real force driving today's decision is . . . the Court's own judgment that murderers younger than 18 can never be as morally culpable as older counterparts."[154] But, of course, it was not solely the Court's own judgment of morality.[155] There was a moral dimension to the majority's opinion, but it was a science-driven conclusion.[156] Justice Scalia's disdain for science, or at least the majority's use of science, was also evident.[157] "To support its opinion . . . the Court looks to scientific and sociological studies, picking and choosing those that support its position. It never explains why those particular studies are methodologically sound; none was ever entered into evidence or tested in an adversarial proceeding."[158] The peer review of academic journals seems to have been inadequate as a test of the evidence.[159] He went on to say that the nuances of scientific methodology and conflicts among scientific studies made the courts "ill equipped to determine which view of science is the right one."[160] It is true that judges and justices tend not to be scientific experts, but this is also true of members of the legislature, a group that Justice Scalia thought better qualified.[161] In fact, neither group has any expertise; the only expertise in the case was that shared by the scientific health organizations in their amicus briefs.[162]

Justice Scalia, after denying any expertise on the part of courts, went on to evaluate the science.[163] He found the studies to be lacking in support of the majority's position.[164] In his view, the studies, at most, concluded that the average person of eighteen is unable to take moral responsibility.[165] He found it consistent with the studies "to believe that those who commit premeditated murder are—at least sometimes—just as culpable as adults."[166]

---

152. *Id.* at 607 (Scalia, J., dissenting).

153. *See id.* at 609–10.

154. *Id.* at 615 (internal quotation marks omitted).

155. *See id.* at 569 (majority opinion).

156. *See id.* at 569–71.

157. *See id.* at 616 (Scalia, J., dissenting).

158. *Id.* at 616–17. Justice Scalia does offer one interesting contradiction in the positions taken by the American Psychological Association. *See id.* at 617–18. The Association had taken the position in its amicus brief that those under eighteen are not morally responsible, but in *Hodgson v. Minnesota*, a case involving juveniles and abortion, the Association had argued that even juveniles as young as fourteen are as capable as adults with regard to moral reasoning. *See id.*

159. *Peer Review*, AM. PSYCHOL. ASS'N, http://www.apa.org/research/responsible/peer/ (last visited Oct. 11, 2013).

160. *Roper*, 543 U.S. at 618 (Scalia, J., dissenting).

161. *See id.*

162. *See id.* at 617.

163. *See id.* at 618–19.

164. *See id.* at 618.

165. *Id.*

166. *Id.*

Five years later, the issue of juvenile punishment was again before the Supreme Court in *Graham v. Florida*.[167] This time the issue was not capital punishment, but the imposition of a sentence of life without the possibility of parole for a minor who had committed a number of armed burglaries or robberies.[168] The majority opinion was written by Justice Kennedy, joined by Justices Stevens, Ginsburg, Breyer, and Sotomayor.[169] Justice Kennedy looked for a national consensus on such severe penalties for juveniles, and while he recognized that the law in thirty-seven states and the District of Columbia allowed sentences of life without the possibility of parole for juveniles under some circumstances, the failure to actually impose such sentences indicated a consensus against their use.[170]

In terms of using the science, the majority repeated some of the analysis from *Roper*.[171] There was no recent data speaking against the Court's earlier position.[172] In fact, the Court cited to amicus briefs submitted by the American Medical Association and the American Psychological Association in noting that "developments in psychology and brain science continue to show fundamental differences between juvenile and adult minds. For example, parts of the brain involved in behavior control continue to mature through late adolescence."[173] As had the Court in *Roper*, the Court found this harsh sentence unsupported by penological purposes, with retribution inappropriate given the lesser culpability of youth, and deterrence unlikely to have an impact.[174] The majority also considered incapacitation, but said that permanent incapacitation is justified only on the assumption that the juvenile is incorrigible—a conclusion inconsistent with youth.[175] Furthermore, rehabilitation made no sense as a goal for this penalty.[176] Perhaps recognizing the criticism that the scientific conclusion might not apply to *all* juveniles, the majority felt that lower courts would be unable to accurately identify the few juveniles who might be incorrigible.[177]

Chief Justice Roberts wrote a concurrence, but it was only in the judgment.[178] He saw the combination of the defendant's juvenile status, the nature of the crime, and the severity of the punishment as making the sentence unconstitutional.[179] He would not accept, however, a categorical rule against

167. *See* Graham v. Florida, 130 S. Ct. 2011, 2017–18 (2010).
168. *See id.* at 2020.
169. *Id.* at 2017.
170. *See id.* at 2023.
171. *See id.* at 2026.
172. *See id.*
173. *Id.*
174. *See id.* at 2028.
175. *See id.* at 2029.
176. *See id.* at 2029–30.
177. *See id.* at 2032.
178. *Id.* at 2036 (Roberts, C.J., concurring).
179. *See id.* at 2042.

sentencing juveniles to life without the possibility of parole.[180] *Roper* was different, because death is different.[181] Despite the rejection of the categorical rule, Chief Justice Roberts concluded that age may be relevant to the propriety of the sentence imposed and conducted his own analysis of the defendant and the crime.[182] He found "no reason to believe that Graham should be denied the general presumption of diminished culpability that *Roper* indicates should apply to juvenile offenders."[183] So, Justice Roberts did not accept that the science demonstrates that juveniles are never sufficiently culpable, and the penological purposes of severe sentences for juveniles are so unmet as to justify life without the possibility of parole, but he did seem to accept a science-based presumption against such severe punishment.[184]

Justice Thomas, joined by Justice Scalia and in part by Justice Alito, dissented.[185] The part of the dissent joined by Justice Alito came to a different conclusion with regard to the relevance of the science.[186] Justice Thomas said that even if "generalizations [regarding maturation and the likelihood of risky behavior in juveniles] from social science were relevant to constitutional rulemaking, the Court misstates the data on which it relies."[187] There are two interesting points regarding this criticism. First, the dissent rejected the "social science" on which the *Roper* majority and the majority here relied.[188] The brain science was not mentioned in this criticism.[189]

The only specific example of a misstatement of the data was a reference to an article cited in the amicus brief submitted by the American Psychological Association.[190] The dissent said that this "research relied upon by the *amici* cited in the Court's opinion differentiates between adolescents for whom antisocial behavior is a fleeting symptom and those for whom it is a lifelong pattern. That research further suggests that the pattern of behavior in the latter group often sets in before 18."[191]

This example from the dissent points to a tactic generally available to diminish the impact of science.[192] It is very seldom that any scientific conclusion, however strongly accepted by the scientific community, will not

180. *See id.*
181. *See id.* at 2038–39.
182. *See id.* at 2040.
183. *Id.*
184. *See id.*
185. *Id.* at 2043 (Thomas, J., dissenting).
186. *See id.* at 2054.
187. *Id.*
188. *See id.*
189. *See id.*
190. *See id.* at 2054–55.
191. *Id.* (citations omitted) (citing Terrie E. Moffitt, *Adolescence-Limited and Life-Course-Persistent Antisocial Behavior: A Developmental Taxonomy*, 100 PSYCHOL. REV. 674, 678 (1993)). The dissent noted that the article distinguished between those adolescents who were antisocial only while adolescents and a smaller group who were antisocial throughout their lifetimes. *Id.*
192. *See id.*

have some detractors. An opponent of the conclusion toward which the science leads will then have an opportunity to point to "doubt" and to reject that conclusion. The dissent's use of the tactic here is a particularly egregious example. The dissent managed to find one, among the more than fifty scientific sources cited in the American Psychological Association's (APA) brief,[193] that it thought to be contrary to the position of the majority and the APA.[194] The study was an older 1993 paper, published well before the real advent of modern neuroscience.[195] Even if it had been directly contrary to the APA position, it could have been seen as old science. But it was not even directly contrary.[196] There are clearly adolescents who are not only antisocial in adolescence but will continue in their antisocial behavior.[197] What is true for adolescents is that there is plasticity to their brains.[198] They are in a period of development.[199] Some may develop into good citizens; others may develop into lifelong criminals.[200] All the majority and the APA needed to assert was that not all adolescents guilty of even major crimes are hopelessly lost.[201] The plasticity of their brains requires that one recognize the possibility of positive development, a possibility that seems inconsistent with a willingness to sentence the juvenile to life without possibility of parole.[202]

There is one more recent case in this line.[203] The earlier cases concluded that juveniles could not be sentenced to death for homicide and that they could not be sentenced to life in prison without the possibility of parole for non-homicide crimes.[204] What remained was the consideration of whether a juvenile could face a mandatory sentence of life without the possibility of parole for homicide.[205] That was the subject matter of *Miller v. Alabama*,[206] and the Court concluded that this severe punishment, with its implication that there was no hope for rehabilitation, was inappropriate even for a homicide committed by a juvenile.[207]

---

193. *See* Brief for American Psychological Ass'n et al. as Amici Curiae Supporting Petitioners, Graham v. Florida, 130 S. Ct. 2011 (2010) (Nos. 08-7412, 08-7621), 2009 WL 2236778 at *iii–*xi [hereinafter Brief for American Psychological Ass'n, *Graham*].

194. *See Graham*, 130 S. Ct. at 2054–55 (Thomas, J., dissenting).

195. Moffitt, *supra* note 191, at 674.

196. *See* Brief for American Psychological Ass'n, *Graham*, *supra* note 193, at 20.

197. *See* Moffitt, *supra* note 191, at 674.

198. *See* Roper v. Simmons, 543 U.S. 551, 570–72 (2005).

199. *Graham*, 130 S. Ct. at 2026–27.

200. *See* Moffitt, *supra* note 191, at 678–79.

201. *See generally* Graham, 130 S. Ct. at 2026–27; Brief for American Psychological Ass'n, *Graham*, *supra* note 193, at 4.

202. *See Graham*, 130 S. Ct. at 2029.

203. *See* Miller v. Alabama, 132 S. Ct. 2455, 2455 (2012).

204. *See id.* at 2463.

205. *See supra* note 85 and accompanying text. There remains one additional consideration: Whether a juvenile can be sentenced to life without the possibility of parole for homicide on a discretionary basis. That issue did not go unnoticed by the dissenters. *See Miller*, 132 S. Ct. at 2483 (Thomas, J., dissenting), 2489–90 (Alito, J., dissenting).

206. *Miller*, 132 S. Ct. at 2455 (majority opinion).

207. *See id.* at 2465.

The case did not really break any new ground, and the distribution of votes in the Court was the same as in the prior case, with two exceptions.[208] Justice Stevens had been replaced by Justice Kagan, who took a similar position, recognizing a difference between juveniles and adults.[209] Chief Justice Roberts had sided with the majority in overturning the sentence in *Graham*, but it had more to do with the specifics of that case.[210] In *Miller*, the Chief Justice wrote a dissenting opinion.[211]

Miller was a consolidation of two appeals, one of which involved a fourteen-year-old who participated in a robbery in which his co-felon killed a store clerk.[212] While the prosecutor had had the discretion whether or not to charge the juvenile as an adult, subsequently having been convicted as an adult, life without the possibility of parole was the only available sentence.[213] The case also involved a fourteen-year-old, who had killed a victim in the process of another robbery.[214] The state juvenile court sent the case to adult court, and the juvenile received a mandatory sentence of life without parole.[215]

The Supreme Court declared the sentences unconstitutional in an opinion written by Justice Kagan and joined by Justices Kennedy, Ginsburg, Breyer, and Sotomayor.[216] The majority covered much of the same ground as had the *Roper* and *Graham* majorities, noting diminished culpability and a greater likelihood of reform and basing its position on the same science cited in the earlier cases.[217] In fact, the majority saw its position as even more scientifically justified than in the prior cases.[218] "The evidence presented to us in these cases indicates that the science and social science supporting *Roper*'s and *Graham*'s conclusions have become even stronger."[219]

If the majority was reinforced in its views by the science, the science did not sway the dissenters.[220] Chief Justice Roberts, in a dissent joined by Justices Scalia, Thomas, and Alito, first found no consensus against such juvenile

208. *Id.* at 2460.
209. *Id.* at 2464.
210. Graham v. Florida, 130 S. Ct. 2011, 2036 (2010) (Roberts, C.J., concurring).
211. *Miller*, 132 S. Ct. at 2477 (Roberts, C.J., dissenting).
212. *Id.* at 2460–61 (majority opinion).
213. *Id.* at 2461.
214. *Id.* at 2462.
215. *Id.* at 2462–63.
216. *See id.* at 2460.
217. *See id.* at 2464.
218. *See infra* note 219 and accompanying text.
219. *Miller*, 132 S. Ct. at 2464 n.5. The footnote cited the Brief of the American Psychological Association as stating "[A]n ever-growing body of research in developmental psychology and neuroscience continues to confirm and strengthen the Court's conclusions." *Id.* (quoting Brief for American Psychological Ass'n, *Graham*, *supra* note 193, at 3) (internal quotation marks omitted). Furthermore, the majority quoted the same brief: "It is increasingly clear that adolescent brains are not yet fully mature in regions and systems related to higher-order executive functions such as impulse control, planning ahead, and risk avoidance." *Id.* (quoting Brief for American Psychological Ass'n, *Graham*, *supra* note 193, at 4) (internal quotation marks omitted).
220. *See id.* at 2477–78 (Roberts, C.J., dissenting).

sentences[221] and said that the issue should be left to legislatures.[222] Chief Justice Roberts also complained that some of the reasoning in *Roper* was based on a view that the death penalty was not needed because of the availability of a sentence of life without the possibility of parole.[223]

Justice Thomas also wrote a dissent, which was joined by Justice Scalia.[224] He argued that the majority opinion was out of line with the original intent behind the Eighth Amendment.[225] He also expressed concern that the majority opinion was a step toward the elimination of discretionary sentences of life without the possibility of parole.[226] Lastly, Justice Alito, also joined by Justice Scalia, dissented.[227] He, too, found no constitutional basis for the decision[228] and expressed his own concern regarding discretionary sentencing.[229] While the dissents did not attack the science in the way they had in the earlier cases, it is clear that they had not been won over by what the majority saw as scientific conclusions that had been strengthened.[230]

VI. QUESTIONING THE ROLE OF SCIENCE

The issue that remains to be examined is whether or not science played a role in what appears to be a change in the Court's view with regard to juvenile sentencing. The greater scientific understanding of the nature of juveniles developed in the era between *Stanford* and *Roper*.[231] That was also the time span in which the Court could be seen as shifting its views on juvenile punishment. It is true that *Thompson* and *Stanford* reached different results regarding the juvenile death penalty, but this should not be seen as signaling any earlier change in the view of juveniles. Justices Stevens, Brennan, Marshall, and Blackmun voted against the death penalty in both cases, while Chief Justice Rehnquist and Justices White and Scalia voted to uphold the sentence in both cases.[232] Justice Kennedy, who had not participated in *Thompson*, voted to uphold the death penalty in *Stanford*.[233] The fifth vote voiding the death penalty in *Thompson* was Justice O'Connor, who voted to uphold the death penalty in *Stanford*.[234] The difference for her was that in the

221. *See id.* at 2478.
222. *See id.* at 2480.
223. *Id.* at 2481.
224. *Id.* at 2482 (Thomas, J., dissenting).
225. *Id.*
226. *See id.* at 2486.
227. *Id.* at 2487 (Alito, J., dissenting).
228. *See id.*
229. *See id.* at 2489–90.
230. *See id.* at 2477–83 (Roberts, C.J., dissenting), 2483–87 (Thomas, J., dissenting), 2487–90 (Alito, J., dissenting).
231. *See supra* notes 64, 129 and accompanying text.
232. *See supra* note 39 and accompanying text.
233. *See supra* note 66 and accompanying text.
234. *See supra* notes 40, 68 and accompanying text.

earlier case, the sentence was not based on a specific judgment by the legislature that such penalties were appropriate, while in the latter case that judgment was present.

Given Justice O'Connor's position, she should be included among those who saw no constitutional problem with the death penalty being imposed on juveniles if the legislatures so desired. There was, then, up through *Stanford* a majority of the Court that would not disallow even the death penalty for juveniles. After the *Stanford* to *Roper* era, the era in which the science developed, there was a majority willing to conclude that the death penalty for juveniles, life without the possibility of parole for non-homicide crimes by juveniles, and mandatory life without the possibility of parole sentences even for homicides by juveniles were unconstitutional. At first blush, then, it would appear that the science made a difference, but that conclusion may be questionable.

Confirming or disconfirming this conclusion would be aided by an examination of the succession of votes coming out of the nine seats on the Court. The following chart shows the breakdown of those votes in the five relevant cases. The column indicating the Justices' names contains those Justices involved in *Thompson* and, where applicable, the succession of Justices in that particular seat. The other entries indicate whether or not the Justice voted in favor of the juvenile or to uphold the punishment, with the exception of Justice Kennedy in *Thompson*, in which he did not participate. The order in which the Justices are presented is intended to simplify the discussion and should have no impact on the conclusion.

Justice	*Thompson*	*Stanford*	*Roper*	*Graham*	*Miller*
Scalia	Punishment	Punishment	Punishment	Punishment	Punishment
Marshall Thomas	Juvenile	Juvenile	Punishment	Punishment	Punishment
O'Connor Alito	Mixed	Punishment	Punishment	Punishment	Punishment
Rehnquist Roberts	Punishment	Punishment	Punishment	Spec. juvenile	Punishment
Stevens Kagan	Juvenile	Juvenile	Juvenile	Juvenile	Juvenile
Brennan Souter Sotomayor	Juvenile	Juvenile	Juvenile	Juvenile	Juvenile
Blackmun Breyer	Juvenile	Juvenile	Juvenile	Juvenile	Juvenile
White Ginsberg	Punishment	Punishment	Juvenile	Juvenile	Juvenile
Kennedy	Did not participate	Punishment	Juvenile	Juvenile	Juvenile

Some insight into the Justices' votes might also be drawn from a consideration of two other cases—*Gonzales v. Carhart* and *Brown v. Entertainment Merchants Ass'n*. Neither case considered the issue of juvenile sentencing, but both turned on the acceptance or rejection of the views of the scientific community.[235] The first, *Gonzales v. Carhart*, involved a federal ban on abortions by dilation and extraction or, as known politically, "partial birth abortions."[236] The Court upheld the ban, despite claims that other methods of abortion were not as safe.[237] In Justice Kennedy's opinion—joined by Chief Justice Roberts and Justices Scalia, Thomas, and Alito—the Court decided that there was a "documented medical disagreement whether the Act's prohibition would ever impose significant health risks on women."[238] Given what it saw as disagreement, the Court deferred to Congress.[239]

Justice Ginsburg's dissent—joined by Justices Stevens, Souter, and Breyer—had a different view of the science, noting that the Court's decision "tolerates, indeed applauds, federal intervention to ban nationwide a procedure found necessary and proper in certain cases by the American College of Obstetricians and Gynecologists."[240] The dissent further concluded that, because Congress had relied on the testimony of a small number of physicians who had little to no experience with surgical abortions, or even any kind of abortions, "[t]he congressional findings on which the Partial-Birth Abortion Ban Act rests do not withstand inspection."[241] *Carhart*, then, represents another case in which some members of the Court were able to find a small number of dissenting "scientific" voices on which to rest their conclusion.[242] The opinion of the scientific community ran counter to that view, but the majority was willing to ignore that expertise.[243]

The second case is *Brown v. Entertainment Merchants Ass'n*, which held California's ban on the distribution of violent videogames to minors unconstitutional.[244] Despite the existence of a significant body of scientific evidence on the harmful effects of these games on children, the majority, in an opinion written by Justice Scalia and joined by Justices Kennedy, Ginsburg, Sotomayor, and Kagan, refused to credit that science.[245] The majority noted that the lower courts had rejected the science, and expressed approval of that rejection.[246]

---

235. Brown v. Entm't Merchs. Ass'n, 181 S. Ct. 2729 (2011); Gonzalez v. Carhart, 550 U.S. 124 (2007).

236. *Carhart*, 550 U.S. at 132, 136 (internal quotation marks omitted).

237. *See id.* at 132, 162.

238. *See id.* at 162.

239. *See id.* at 162–63 ("The Court has given state and federal legislatures wide discretion to pass legislation in areas where there is medical and scientific uncertainty.").

240. *Id.* at 170–71 (Ginsburg, J., dissenting).

241. *Id.* at 174–75.

242. *See id.* at 167–68 (majority opinion).

243. *See id.* at 174–75 (Ginsburg, J. dissenting).

244. *See* Brown v. Entm't Merchs. Ass'n, 131 S. Ct. 2729, 2738 (2011).

245. *See id.* at 2739.

246. *See id.*

Justice Alito's opinion—joined by Chief Justice Roberts—concurred in the judgment because they saw the statute as too vague, but they did not reject the science.[247]

> When all of the characteristics of video games are taken into account, there is certainly a reasonable basis for thinking that the experience of playing a video game may be quite different from the experience of reading a book, listening to a radio broadcast, or viewing a movie. And if this is so, then for at least some minors, the effects of playing violent video games may also be quite different. The Court acts prematurely in dismissing this possibility out of hand.[248]

There were also two dissents. The first, by Justice Thomas, did not really take on the scientific question.[249] Rather, Justice Thomas relied on the views of the Framers regarding children's access to media.[250] He would have upheld the statute because "[t]he practices and beliefs of the founding generation establish that 'the freedom of speech,' as originally understood, does not include a right to speak to minors (or a right of minors to access speech) without going through the minors' parents or guardians."[251]

The only Justice to actually give a careful examination to the science was Justice Breyer.[252] In his dissent, he provided two appendices, the first listing 115 studies supporting the concerns that motivated the California legislature, and the second listing thirty-four that might be seen as conflicting.[253] While Justice Breyer admitted to lacking the expertise to say with certainty which body of evidence was correct, he noted that "associations of public health professionals who do possess that expertise have reviewed many of these studies and found a significant risk that violent video games, when compared with more passive media, are particularly likely to cause children harm."[254] He followed up by quoting statements of concern offered by "the American Academy of Pediatrics, the American Academy of Child & Adolescent Psychiatry, the American Psychological Association, the American Medical Association, the American Academy of Family Physicians and the American Psychiatric Association."[255]

---

247. *Id.* at 2748 (Alito, J., dissenting).

248. *Id.* at 2751.

249. *Id.* (Thomas, J., dissenting).

250. *See id.*

251. *Id.*

252. *See id.* at 2778 (Breyer, J., dissenting).

253. *See id.* app. at 2778–79. Not all of the studies in the second appendix really conflicted with those in the first. For example, a study that shows that violence in video games improves performance in those games does not refute the claim that the games have a negative impact in the real world. *See* Wolfgang Bösche, *Violent Content Enhances Video Game Performance*, 21 J. MEDIA PSYCHOL.: THEORIES, METHODS, AND APPLICATIONS 145, 149 (2009).

254. *Brown*, 131 S. Ct. at 2769 (Breyer, J., dissenting).

255. *Id.*

Brown also provides, then, an instance in which some of the Court's members seemed willing to ignore the views of the scientific community.[256] Others, most notably Justice Breyer, but also Justice Alito and Chief Justice Roberts, drew guidance from those with scientific expertise.[257] The positions taken in both *Brown* and *Carhart* may help explain whether it was truly science that led to the positions of particular Justices in the juvenile sentencing cases and the overall change in the Court's position.[258]

Turning first to the seat occupied by Justice Scalia, it is the easiest to analyze. Justice Scalia has held the seat for the entirety of the relevant period, so any change in vote would not be the result of change in the occupant.[259] Furthermore, there has been no change in vote.[260] Justice Scalia has voted contrary to the science in all of the juvenile sentencing cases.[261] He did so when the only available scientific work was that of developmental psychologists,[262] and he continued after the development of neuroscientific evidence.[263] In the other two cases considered, *Brown* and *Carhart*, he also voted against the direction indicated by the relevant sciences.[264] Justice Scalia seems simply to be unaccepting of science as providing guidance to the Court. He is guided by his constitutional views, unencumbered by science, and that seems to be so whether he is upholding the legislative determination, as in the sentencing cases and *Carhart*, or striking down the legislative determination, as in *Brown*.[265] Science does not matter, and perhaps he should simply say so, rather than trying to explain away the science.

With regard to the seat occupied by Justice Marshall—currently occupied by Justice Thomas—we do find a change in votes that matches the change in personnel. Justice Marshall voted to strike down the death penalty in both of the early juvenile cases, while Justice Thomas consistently voted to uphold the penalties.[266] Justice Marshall joined the plurality opinion in *Thompson*, which recognized differences between juveniles and adults.[267] He joined the dissent in *Stanford*, which criticized the majority's "disdain" for science.[268] Justice Marshall could, thus, be seen as relying on science. Yet, even without the

256. *See id.* at 2739 (majority opinion).
257. *See id.* at 2748 (Alito, J., dissenting).
258. *See id.* at 2729 (majority opinion); Gonzales v. Carhart, 550 U.S. 124, 124 (2007).
259. *See supra* notes 39, 45–46, 100–03, 113–14 and accompanying text.
260. *See supra* note 259 and accompanying text.
261. *See supra* note 259 and accompanying text.
262. *See supra* notes 39, 45–46 and accompanying text.
263. *See supra* notes 100–03, 113–14 and accompanying text.
264. *See supra* notes 131–35, 138–39 and accompanying text.
265. *See e.g.*, Brown v. Entm't Merchs. Ass'n, 131 S. Ct. 2729, 2738–39 (2011); Gonzales v. Carhart, 550 U.S. 124, 124 (2007).
266. *See e.g.*, *Brown*, 131 S. Ct. at 2738–39; *Carhart*, 550 U.S. at 124.
267. *See supra* notes 29–37 and accompanying text.
268. *See supra* notes 77–84 and accompanying text.

science, he might well come to the same conclusions simply based on his disagreement with the death penalty.[269]

Once Justice Thomas replaced Justice Marshall, the vote from that seat changed.[270] The change was in a direction opposite to the development of science; that is, while the science was providing better justification for distinguishing between juveniles and adults and for barring harsh sentences for juveniles, the vote from this seat changed from protecting juveniles to allowing harsh sentences.[271] Such a change is one made despite the science, rather than because of it.

The seat held by Justice O'Connor and then by Justice Alito can be viewed as providing a consistent vote in favor of allowing the legislature to impose harsh sentencing on juvenile offenders. Justice O'Connor did provide the necessary fifth vote in overturning the death penalty in *Thompson*, but she did so because the legislature had not determined that it was an acceptable penalty.[272] In *Stanford*, where there was a legislative provision for the death penalty, she voted to uphold it.[273] Justice O'Connor was still on the Court when it decided *Roper*, after the development of neuroscience.[274] She dissented, and while she may not have completely discounted the scientific conclusions, she certainly cannot be said to have been swayed by them.[275] Justice Alito joined the Court prior to *Graham*. He took up Justice O'Connor's dissenting position, but with a firmer rejection of the science.[276] This was interesting, given Justice Alito's somewhat positive treatment of the science in *Brown*.[277] Justice Alito's treatment of the science may simply indicate his willingness to place limits on expression, rather than indicate that he is truly guided by science.[278] Hence, with votes consistently contrary to the direction that neuroscience would indicate, science cannot be said to have affected the vote.

Turning to the Chief Justices, we find Chief Justice Rehnquist voted to uphold the imposition of the death penalty in all three of the juvenile death penalty cases.[279] Chief Justice Roberts might, after his vote in *Graham*, have been seen as taking the side indicated by science.[280] But it seems his

---

269. *See, e.g.*, McCleskey v. Bowers, 501 U.S. 1282, 1282 (1991) (Marshall, J., dissenting) ("[T]he death penalty is in all circumstances cruel and unusual punishment prohibited by the Eighth and Fourteenth Amendments . . . .").

270. *See supra* notes 221–26 and accompanying text.

271. *See supra* notes 221–26 and accompanying text.

272. *See supra* note 60 and accompanying text.

273. *See supra* note 68 and accompanying text.

274. *See supra* note 149 and accompanying text.

275. *See supra* notes 149–51 and accompanying text.

276. *See supra* notes 187–89 and accompanying text.

277. *See supra* note 248 and accompanying text.

278. *See* United States v. Stevens, 130 S. Ct. 1577, 1592 (2010) (Alito, J., dissenting) (casting the sole dissenting vote in a case striking down a statute prohibiting depictions involving animal cruelty).

279. *See supra* notes 62–63, 154–58 and accompanying text.

280. *See* Graham v. Florida, 130 S. Ct. 2011, 2036 (2010) (Roberts, C.J., concurring).

concurrence in *Graham* really did rely on a combination of not only juvenile status, but also the crime's nature relative to the severity of the sentence.[281] Chief Justice Roberts rejected any flat rule against life without the possibility of parole in other juvenile cases.[282] When *Miller* came along, with its more significant crime, Chief Justice Roberts voted to uphold the sentence, clearly indicating that neuroscience alone had not led to his earlier vote.[283]

The only seat on the Court to be occupied by three Justices over the relevant period is that occupied by Justice Brennan, followed by Justice Souter, and then by Justice Sotomayor. The three consistently voted in favor of leniency in juvenile sentencing, but the role of neuroscience may be questionable. Justice Brennan's two votes occurred prior to neuroscientific development and probably reflect his general views on the death penalty, but even his views might have been strengthened by the positions taken by the plurality in *Thompson* and the dissent in *Stanford*.[284] By the time the Court reached its decision in *Roper*, Justice Souter had replaced Justice Brennan.[285] Justice Souter joined the majority in *Roper*, which did seem to rely on the neuroscientific evidence presented to the Court.[286] He may have been swayed by science, or he may simply have taken a liberal position. In either case, there was not a change in vote on the issue. When Justice Souter was replaced by Justice Sotomayor, she too joined the majority, which seemed guided by science.[287] It may, however, have been more a matter of joining in a liberal decision, rather than a science-based decision. That conclusion would be consistent with Justice Sotomayor's position in *Brown*, in which she would not allow science to override the First Amendment.[288]

The seat occupied by Justice Blackmun, and then Justice Breyer, provided a consistent vote limiting harsh juvenile sentences. The change in occupant occurred in the same time span as the development of neuroscience. In fact, the best case for science guiding a Justice would be Justice Breyer. He joined the majority in *Roper*, *Graham*, and *Miller*,[289] and all three majority opinions cited to neuroscientific findings. That, in itself, might be insufficient to show his reliance on science. But his strong reliance on science in *Brown* backs up the contention that science, rather than simply a liberal position, guided his decisions.[290] Nonetheless, Justice Breyer's votes were the same as those cast by

281. *See supra* note 182 and accompanying text.

282. *See supra* note 182 and accompanying text.

283. *See supra* notes 224–26 and accompanying text.

284. *See, e.g.*, Coker v. Georgia, 433 U.S. 584, 600 (1977) (Brennan, J., concurring) ("[T]he death penalty is in all circumstances cruel and unusual punishment prohibited by the Eighth and Fourteenth Amendments.").

285. *See supra* note 138 and accompanying text.

286. *See supra* notes 138–44 and accompanying text.

287. *See supra* notes 168–70 and accompanying text.

288. *See supra* note 245 and accompanying text.

289. *See supra* notes 138, 168–70, 206–12 and accompanying text.

290. *See supra* notes 252–55 and accompanying text.

Justice Blackmun, so his acceptance of science did not lead to a change in the Court's view.[291]

Perhaps the most dramatic shift on the Court occurred when Justice White, who voted to uphold the death penalty in both *Thompson* and *Stanford*, was replaced by Justice Ginsburg.[292] Justice Ginsburg became a consistent vote against harsh sentences for juvenile offenders.[293] The change, again, occurred at the same time as the neuroscience evidence developed, so there was the possibility that Justice Ginsburg was guided by science, rather than by a more liberal position than Justice White would have accepted. This view might be backed up by Justice Ginsburg's dissent in *Carhart*, in which she criticized the majority for ignoring the scientific positions taken by the American College of Obstetrics & Gynecology.[294] However, she did the same in *Brown* by rejecting the science on the impact of violent videogames on children.[295] The better explanation for Justice Ginsburg's vote, a vote that was important in the Court's change in position, would simply be adherence to a liberal point of view that protected juveniles against harsh sentences, free expression rights, and abortion rights. That was consistent, while her acceptance of science was inconsistent.

Finally, Justice Kennedy, who has been on the Court for the entirety of the relevant period, may be the most difficult to explain. While Justice Kennedy did not participate in *Thompson*, he voted to uphold the death penalty in *Stanford*.[296] But, at least after, if not because of, the neuroscientific developments, his became a consistent vote against harsh juvenile sentences.[297] Justice Kennedy wrote the majority opinion in *Roper*, which set out and relied on these neuroscientific developments,[298] and he was in the majority in *Graham* and *Miller*,[299] which built on *Roper* and its neuroscience. However, he also wrote the majority opinion in *Carhart* and joined the majority in *Brown*,[300] decisions that both cut against the views of the relevant scientific communities. Justice Kennedy's change in vote, then, is mysterious. If he had been consistent, he might be seen as taking liberal positions regarding harsh sentencing and free expression of rights, while not favoring abortion rights. But this does not explain the inconsistency in voting to uphold the death penalty in *Stanford*, while voting as he did in the later cases.[301]

---

291. *See supra* notes 289–90 and accompanying text.
292. *See supra* notes 40, 65–66 and accompanying text.
293. *See supra* notes 168–70, 215–19, 138 and accompanying text.
294. *See supra* notes 240–41 and accompanying text.
295. *See supra* notes 245–46 and accompanying text.
296. *See supra* note 66 and accompanying text.
297. *See supra* notes 138–44, 168–70, 206–12 and accompanying text.
298. *See supra* notes 138–44 and accompanying text.
299. *See supra* notes 168–70, 206–12 and accompanying text.
300. *See supra* notes 238, 245 and accompanying text.
301. *See supra* notes 258–61 and accompanying text.

VII. CONCLUSION

While the position taken by the Supreme Court with regard to harsh juvenile sentencing clearly changed during the time span in which neuroscience came to understand the teenage brain, it is far from clear that this change was motivated by new scientific understanding. In that period, the position favoring leniency lost one vote when Justice Marshall was replaced by Justice Thomas.[302] A shift of two votes in the opposite direction was then required to reach the Court's later position.[303] Other votes in favor of the juvenile had to remain the same, even if the Court's personnel changed. Science could have played a role in the maintenance of some of those votes, but it seems not to have. Of the two votes that shifted, the change that resulted from Justice White being replaced by Justice Ginsburg seems better explained by the replacement of a conservative by a liberal than by the influence of science. The explanation for the change in Justice Kennedy's vote is far from apparent. However, even if science did play a role, that role in this one change of vote is insufficient to explain the Court's change in position.

302. *See supra* notes 66, 138–44, 168–70, 206–12, 238, 243 and accompanying text.

303. *See supra* notes 280–87 and accompanying text.

TEXAS TECH LAW REVIEW

VOLUME FORTY-SIX
2013-2014

TEXAS TECH UNIVERSITY
School *of* Law™

FACULTY OF THE SCHOOL OF LAW

JENNIFER S. BARD, Alvin R. Allison Professor of Law; Adjunct Associate Professor, Department of Neuropsychiatry, (Health Sciences Center); Director, Health Law Certificate Program, 2003. B.A., Wellesley College, 1983; J.D., Yale University, 1987; M.P.H., University of Connecticut, 1997.

DUSTIN BENHAM, Assistant Professor of Legal Practice, 2010.

GENEVIEVE BEYEA, Assistant Professor of Law, 2009. B.A., Northwestern University; J.D., New York University School of Law.

GERRY W. BEYER, Governor Preston E. Smith Regents Professor of Law, 2005. B.A., Eastern Michigan University, 1976; J.D., Ohio State University, 1979; LL.M., University of Illinois, 1983; J.S.D., 1990.

CHARLES P. BUBANY, Adjunct Professor of Law (Former George Herman Mahon Professor of Law), 1971. B.A., Saint Ambrose University, 1962; J.D., Washington University, 1965.

FERNANDO M. BUSTOS, Adjunct Professor of Law, 2000. B.A., Brigham Young University; J.D., Texas Tech University School of Law.

BRYAN T. CAMP, Professor of Law, 2001. B.A., Haverford College, 1982; J.D., University of Virginia, 1987; M.A., 1988; LL.M., Columbia University, 1993.

WILLIAM R. CASTO, Paul Whitfield Horn Professor of Law, 1983. B.A., University of Tennessee at Knoxville, 1970; J.D., 1973; J.S.D., Columbia University, 1983.

CATHERINE CHRISTOPHER, Adjunct Professor of Legal Practice, 2012.

J. WESLEY COCHRAN, Associate Dean for Academic Affairs and Maddox Professor of Law, 1991. B.A., Austin College, 1976; J.D., University of Houston, 1978; M.L.L., University of Washington, 1980.

JOSEPH P. CONBOY, Adjunct Professor of Law (Former Associate Dean for Student Affairs), 1982. B.S., Canisius College, 1954; J.D., Georgetown University Law Center, 1956; LL.M., George Washington National Law Center, 1972.

DARBY DICKERSON, Dean and W. Frank Newton Professor of Law, 2011. B.A., College of William and Mary, 1984; M.A., College of William and Mary, 1985; J.D., Vanderbilt Law School, 1988.

JAMES R. EISSINGER, Adjunct Professor of Law (Former Associate Dean for Academic Affairs and Interim Dean), 1972. B.A., Wartburg College, 1960; J.D., University of North Dakota, 1964.

JAROD S. GONZALEZ, Associate Professor of Law, 2004. B.B.A., University of Oklahoma, 1997; J.D., 2000.

KENT R. HANCE, Chancellor, Texas Tech University System, 2007; Professor of Law, 2007. B.B.A., Texas Tech University, 1965; J.D., University of Texas, 1968.

MICHAEL HATFIELD, Professor of Law, 2005. B.A., Texas A&M University, 1991; M.A., 1993; J.D., New York University, 1996.

WALTER B. HUFFMAN, Dean Emeritus and W. Frank Newton Professor of Law, 2002. B.A., Texas Tech University, 1967; M.Ed., 1968; J.D., 1977.

WENDY A. HUMPHREY, Assistant Professor of Legal Practice, 2007. B.A., Westminster College, 1995; M.Ed., Texas Tech University, 1997; J.D., 2001.

VAUGHN E. JAMES, Professor of Law, 2001. B.A., University of the Virgin Islands, 1986; M.Div., Andrews University, 1991; M.B.A., State University of New York—University at Albany, 1993; J.D., Syracuse University College of Law, 1998.

AMY JARMON, Assistant Dean for Academic Success Programs and Lecturer, 2004. A.B., College of William and Mary, 1971; M.Ed., Boston University, 1972; Ed.D., College of William and Mary, 1983; J.D., 1992.

TRAVIS DALE JONES, Professor of Legal Practice, 1999. B.S., Texas Tech University, 1965; J.D., University of Texas, 1968.

SHERI KIME-GOODWIN, Adjunct Professor of Legal Practice, 2005.

JOHN E. KRAHMER, Foundation Professor of Commercial Law, 1971. B.A., University of Iowa, 1965; J.D., 1966; LL.M., Harvard University, 1967.

CHRISTOPHER KULANDER, Assistant Professor of Law, 2011. B.S., Wright State University, 1993; M.S., 1995; Ph.D., Texas A&M University, 1999; J.D., University of Oklahoma College of Law, 2005.

ANGELA M. LAUGHLIN, Associate Professor of Law, 2002. B.A., University of Virginia, 1995; J.D., Northeastern University, 1999.

ARNOLD H. LOEWY, George R. Killam Jr. Professor of Criminal Law, 2006. B.S., Boston University, 1961; J.D., 1963; LL.M., Harvard University, 1964.

PATRICK S. METZE, Adjunct Professor of Law; Criminal Justice Clinic, 2007. B.A., Texas Tech University, 1970; J.D., University of Houston Law Center, 1973.

RICHARD MURPHY, AT&T Professor of Law, 2009. B.A., Carleton College, 1987; J.D., University of Minnesota Law School, 1995.

ALISON G. MYHRA, Professor of Law, 1991. B.A., B.S.Ed., University of North Dakota, 1982; J.D., 1985; LL.M., Harvard University, 1991.

ALYSON OUTENREATH, Assistant Professor of Law, 2011. B.S., Texas Christian University, 1994; J.D., Texas Tech University School of Law, 2000.

DEAN G. PAWLOWIC, Professor of Law, 1989. B.A., Creighton University, 1970; M.A., 1972; J.D., 1979.

KIMBERLY D. PHILLIPS, Assistant Professor of Legal Practice; Deputy Director, Center for Military Law and Policy, 2003. B.B.A., Texas Tech University, 1992; J.D., Washburn University, 1996.

JORGE A. RAMÍREZ, Professor of Law; Director of International Programs, 2000. B.A., Harvard University, 1984; J.D., 1990.

DON RICHARDS, Adjunct Professor of Law, 2011. B.A., Texas Tech University; J.D. Texas Tech University School of Law.

RICHARD D. ROSEN, Associate Professor of Law; Director, Center for Military Law and Policy, 2003. B.A., Ohio State University, 1970; J.D., University of Miami, 1973; LL.M., University of Virginia, 1987.

WENDY TOLSON ROSS, Associate Professor of Law; Director, Civil Practice Clinic, 2005. B.A., Texas Tech University, 1988; J.D., University of Missouri-Columbia, 1991.

BRIAN D. SHANNON, Charles B. "Tex" Thornton Professor of Law, 1988. B.S., Angelo State University, 1979; J.D., University of Texas, 1982.

BRIE SHERWIN, Adjunct Professor of Law, 2008; Assistant Director, Center for Biodefense, Law and Public Policy. B.S., University of New Mexico, 1998; J.D., Texas Tech University School of Law, 2001; M.S., Texas Tech University, 2001.

ROBERT T. SHERWIN, Adjunct Professor of Law, 2008; Director, Advocacy Programs. B.S., Texas Christian University, 1998; J.D., Texas Tech University School of Law, 2001.

NANCY SOONPAA, Professor of Law; Director, Legal Practice Programs, 2001. B.A., University of North Dakota, 1983; J.D.,1987; M.A., 1990.

LARRY R. SPAIN, Professor of Law; Director of Clinical Programs, 2001. B.A., University of Iowa, 1973; J.D., Creighton University School of Law, 1976.

PAUL STAFFORD, Adjunct Professor of Law. B.A., Texas A&M University, 1990; J.D., Texas Tech University School of Law, 1994.

DAVID STRANGE, Adjunct Professor of Law, 2008. B.A., University of Houston, 1999; J.D., University of Houston Law Center, 2004.

VICTORIA SUTTON, Robert H. Bean Professor of Law, 1999-2010; Paul Whitfield Horn Professor of Law, 2010; Director, Center for Biodefense, Law and Public Policy, 2001. B.S., North Carolina State University, 1977, 1980; M.P.A., Old Dominion University, 1986; Ph.D., University of Texas at Dallas, 1988; J.D., American University, 1998.

GARY TERRELL, Adjunct Professor of Law, 1996. B.A., Angelo State University, 1994; J.D., Texas Tech University School of Law, 1977.

ARTURO TORRES, Associate Dean for Law Library and Computing; Professor of Law, 2000. B.A., University of Nevada (Las Vegas), 1971; M.Ed., 1973; J.D., Willamette University, 1979; Ph.D., University of Arizona, 1980; M.L.S., University of Washington, 1984.

JOHN L. WATTS, Associate Professor of Law, 2008. B.A., University of Maryland, 1992; J.D., Harvard, 1996.

ROBERT A. WENINGER, J. Hadley Edgar Professor of Law, 1974. B.B.A., University of Wisconsin, 1955; LL.B., 1960; LL.M., University of Chicago, 1964.

The *Texas Tech Law Review* (USPS 670-550; ISSN 05646197) is published quarterly by the Texas Tech University School of Law. Subscription price is $35.00 a year (Texas residents add $2.90 sales tax). Single copy prices are as follows: $10.50 regular issue (Texas residents add $.87 sales tax); $26.50 Fifth Circuit Symposium Issue (Texas residents add $2.19 sales tax). Add $1.50 postage on the price of single issue ordered. Subscriptions are automatically renewed unless notice to the contrary is received. Only current issues are available from the Business Office. Editorial and Business Offices: *Texas Tech Law Review*, Texas Tech University School of Law, 1802 Hartford Avenue, Lubbock, Texas 79409-0004. Telephone: (806) 834-3493; Fax: (806) 742-4666. E-mail: donna.jones@ttu.edu (secretary). The rights to volumes 1 – 45 are owned by William S. Hein & Co., 2350 North Forest Road, Getzville, NY 14068; in addition, microfilm copies of issues from volumes thirteen through nineteen are also available through Hein. All orders and prices are available through Hein. The views expressed in the articles do not necessarily represent the views of the Editors or of the Texas Tech University School of Law. Periodicals postage paid at Lubbock, Texas, and additional mailing offices at Indianapolis, Indiana.

Citations conform with *The Bluebook: A Uniform System of Citation* (Columbia Law Review Ass'n et al. Eds., 19th ed. 2010) and *Texas Rules of Form* (12th ed. 2010).

Texas Tech Law Review is covered in *Legal Contents*. Unsolicited manuscripts for publication are welcomed, but can be returned only if accompanied by return postage.

POSTMASTER: Send address changes to *Texas Tech Law Review*, Texas Tech University School of Law, 1802 Hartford Avenue, Lubbock, Texas 79409-0004.

TEXAS TECH LAW REVIEW

VOLUME 46 WINTER 2014 NUMBER 2

BOARD OF EDITORS